

## SHEET INDEX

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## CIRCUIT NOTES:

101.

DESIG	FUNCTION	POTENTIAL	ONE PER
1 1/3	-48 SIG X		CKT
<b>BATTERY SYMBOL</b>			
	-48	42.5 - 52.5V	

\* THE BASE FOR THE 48V S1+ BAT. SHALL BE MOUNTED ON A BUS BAR FED BY A LEAD WHICH DOES NOT FEED SIGNAL BAT. TO ANY OTHER CKT.

102.

FEATURE OR OPTION	PROVIDE		QUANTITY
	APP FIG. NO.	APP FIG. NO.	
TONE GENERATOR CKT	FOR OTHER TONE EMISSIONS	1, 2, 3	1 PER CKT
	FOR ESS APPLICATION (SEE NOTE 105)		
GROUNDED ALARM INDICATION	X		
800-0MH BATTERY ALARM INDICATION	Y		

103.

NETWORK VALUES		
NETWORK NO.	RESISTANCE IN OHMS	CAPACITANCE IN UF

104.

CHANGED ON ISS	IF JOB NO. OF THIS NOTE WAS FURN	SEE NOTE	USE IN CIRCUIT		
			STD	ALM	MD
7B	V OR W	W	102	V	W
108	U	NONE		U	
11B	T	U		T	U
15B	P	Q		P	Q
160			10B		U

105. Z WIRING IS FURNISHED WITH UNIT AS MANUFACTURED.  
REMOVE Z WIRING FOR ESS APPLICATION (Z/F).

## CIRCUIT NOTES:(CONT)

106.

CIRCUIT SYSTEM	OPTION	LEAD DESIGNATIONS					NOTES
ALM1	ALM2	ALM3	ALM4	ALM5	ALM6	ALM7	
FLOOR ALARM BOARD MISC & AUX ALARM (SD-2120-01)	BCD PANEL	X	AG			6	
MISC ALARMS (SD-20341-01)	BCD PANEL	X	AG			6	
AUDIBLE ALARM CKT (SD-21819-01)	BCD & GCO PANEL	X				6	
AISLE PILOT CKT (SD-25097-01)	NO. 1 ZBAR	X	F			6	MG
ALARM CKT (SD-25471-01)	NO. 5 ZBAR	Y	RH				
AUDIO RELAY ALARM (SD-96180-01)	COM	X	F			6	
PILOT LAMP CKT (SD-31548-01)	NO. 1 SXS	X	AM			C	
TONE CKT-INT CONTR. & DIST (SD-81652-01)	ESS		ALM2	ALM3			
MISC ALM CKT (SD-32192-01)	355A SIS	X	AM			C	
PILOT LAMP CKT (SD-31573-01)	350A SIS	X	RH			C	
AUX PSH TRK CKT (SD-99329-01)	COM		ALM2	ALM3			

107. THE CHANGE CLASSIFICATION "B" FOR ISSUE 103 WAS REVISED TO ISSUE 140, WITHOUT CIRCUIT CHANGES. ALL REFERENCES TO OPTIONS R AND S THAT APPEARED ON ISSUE 103, ARE REMOVED FROM THE DRAWING.

108. ON ISSUE 12A OPTION U WAS RETERATED FROM MANUFACTURE DISCONTINUED TO STANDARD.

## EQUIPMENT NOTES:

- THE 400A TONE GENERATOR REQUIRES 2 X 23 INCHES OF MOUNTING SPACER.
- A 45-19271-1 AMPLIFIER (COVERED BY SD-99729-01) IS INCLUDED AS PART OF THE 400A TONE GENERATOR.
- TERMINALS 11, 12, 13, 14, 15, 24, 25, 31, 32, AND 34 OF TBT ARE FOR TEST PURPOSES. SEE FS 1.

## INFORMATION NOTES:

- LESS RESISTANCE SPECIFIED:  
RESISTANCE VALUES ARE IN OHMS,  
CAPACITANCE VALUES ARE IN MICROFARADS,  
VALUES PRECEDED BY THE SYMBOL + (PLUS)  
OR - (MINUS) ARE IN VOLTS.
- REDUCTION IN GENERATOR OUTPUT WITH LOW RESISTANCE  

LOAD RESISTANCE	REDUCTION IN OUTPUT
100 OHMS	1/2 DB
50 OHMS	1 DB
30 OHMS	1-1/2 DB
20 OHMS	2 DB
- P-42EB11 PULSE GENERATORS WHICH INCLUDED P-42EB10 SERIES THESE UNITS 2 PRINTED WIRING BOARDS SHOULD NOT BE USED. THESE BOARDS ARE TO BE USED IN THE P-42EB11. THE P-42EB10 UNITS IN OPERATION OF THE TONE ALARM CIRCUIT, RELAY (A) SHOULD EITHER BE MODIFIED OR RETURNED TO THE WESTERN ELECTRIC CO. FOR MODIFICATION.
- PRIOR TO ISSUE 8D THE 400A TONE GENERATOR WAS CODED APPARATUS.

## SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWING	J99327A

## OPTION INDEX

APP FIG. WIRING	LOCATION
Z	2F6
Y	APP FIG. 1
X	208
W	268
V	APP FIG. 1
H	APP FIG. 1
I	APP FIG. 1
J	APP FIG. 1
K	APP FIG. 1
L	APP FIG. 1
M	APP FIG. 1
N	APP FIG. 1
O	APP FIG. 1
P	APP FIG. 1

## WORKING LIMITS

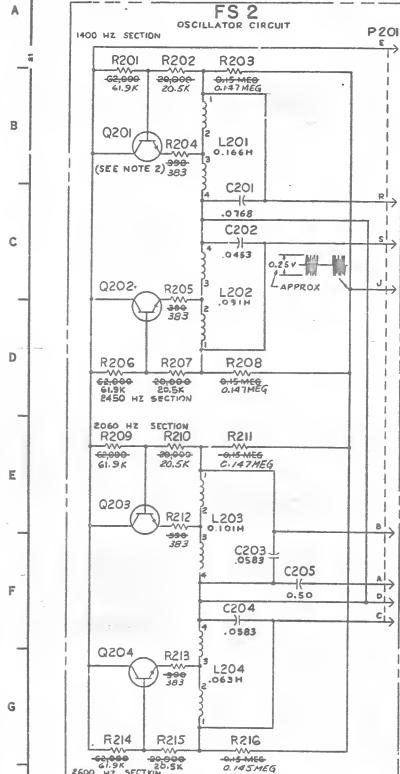
MAX. LOOP RESISTANCE FOR T AND R LEADS IS  
20 OHMS.

SD-99303-01	IN95
COMMON SYSTEMS	AT&T STANDARD
400A TONE GENERATOR CIRCUIT	
SD-99303-01-I	
400A TONE GENERATOR	
BELL TELEPHONE LABORATORIES INCORPORATED	5 SHEETS
	65

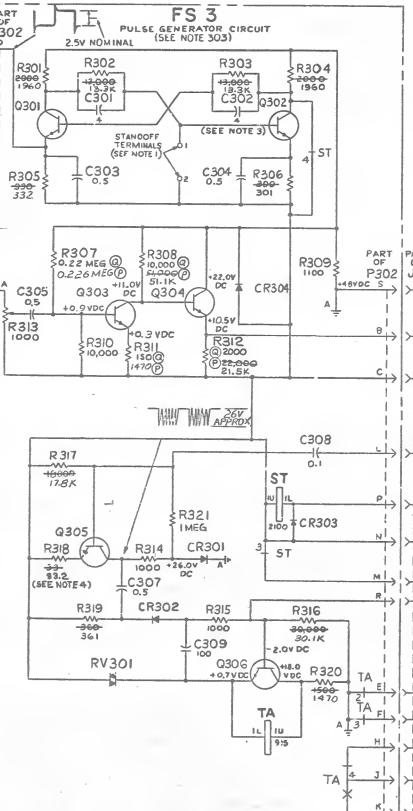
NOTICE  
THIS SHEET IS SUBJECT TO  
REVISIONS AS INDICATED  
BY THE DATE INDICATED  
IN THE REVISION HISTORY  
SECTION OF THIS AGREEMENT.

ISSUE  
18D

PART OF  
FSI  
CONTROL  
CIRCUIT



PART OF FS I-  
CONTROL CIRCUIT



400A TONE GENERATOR, CIRCUIT		SEE NOTES ON NOTICE
BELL TELEPHONE LABORATORIES		EST 1877 THE BELL SYSTEM TELEPHONE TELEGRAPH TELETYPE WIRELESS AGREEMENT
		SD-99303-01-2

TO TIMER CKTS, PERM  
SIG HOLD TKS, U.S.  
OR CONNCKS AS REQD  
(SEE NOTE 302)

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CHEEZY WORLD

SHEET NOTES:

1. STANDOFF TERMINALS ARE FOR TEST PURPOSES ONLY.
2. VOLTMAGES MEASURED AT TRANSISTOR Q201,2,3 AND 4:
  - (A) COLLECTOR - PULSATING +1.6V DC PEAK DEFLECTION.
  - (B) BASE - PULSATING +0.2V DC PEAK DEFLECTION.
  - (C) Emitter - PULSATING -0.1V DC PEAK DEFLECTION.
3. VOLTMAGES MEASURED AT TRANSISTORS Q301,2:
  - (A) COLLECTOR - PULSATING +12.0V DC PEAK DEFLECTION.
  - (B) BASE - PULSATING +10V DC PEAK DEFLECTION.
  - (C) Emitter - PULSATING +1.7V DC PEAK DEFLECTION.

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SHEET NOTES: (CONT)

4. VOLTMAGES MEASURED AT TRANSISTOR Q305:
  - (A) COLLECTOR - PULSATING +7.5V DC PEAK DEFLECTION.
  - (B) BASE - PULSATING +35V DC PEAK DEFLECTION.
  - (C) Emitter - PULSATING 0.65V DC PEAK DEFLECTION.
5. ALL DC VOLTMAGES ARE APPROXIMATE AND TAKEN WITH RESPECT TO -48V DC (TERMINAL 41 OF T81) USING A DC VTVM WITH 11 MEGOHM INPUT RESISTANCE (MINIMUM)

-APP FIG. 1-

AMPLIFIER		LOC	CORE	CONNECTOR			QIGS	QES16	LOC	CORE
DES15	AMP 1	2B7	KS-19221,L1	J1	J2	J3	CR1	CR1	2FB	-4464,533F
CAPACITOR		LOC	CORE				CR2	CR2	20B	-4464,533F
(U)	C1	2C6	5420	S	2C2	2C4	2C5		LAMP	
(T)	C2	2D6	KS-19698,L37, 500	R	2C2	2F6	2C7		DES16	LOC
				P	2E6	2C6	2C7	(U)	DS1	CORE
				H	2F5	2C6	2C8			W1
				I	2F6	2C6	2C8		RESISTOR	
				L	2E6				DES16	LOC
				K	2H6			(U)	R1	CORE
				J	2C2	2H6				W1H
				H	2E6	2H6			(T)	R2
				F	2E6	2H6				2FT
				E	2A2	2E6				KS-14603,L1A, 21,5
				D	2F2	2A2				
				C	2F2	2D6	2C6			
				B	2E2	2C2	2C6			
				A	2F2	2C2	2C8			

ED-99654-30 OSCILLATOR (PRINTED WIRING BOARD ASSEMBLY) (SEE NOTE 1)

**APP FIG. 2**

NOTES:  
1. PRIOR TO ISSUE 80 THE EO-99654-30 OSCILLATOR  
HAD THE P-42F817 OSCILLATOR.

**NOTICE**  
NOT FOR USE OR  
DISCLOSURE OUTSIDE  
THE BELL SYSTEM  
EXCEPT UNDER

SD-99383-01

BELL TELEPHONE LABORATORIES

SD-99303-01-3

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SEARCHED BY M.B.A.

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## APP FIG. 3

A	RELAY	CAPACITOR	CONNECTOR	DIODE	RESISTOR	TRANSISTOR
B	DES16 ST TA CODE M46A M41A OPTION	0ES16 LOC CODE C301 283 603A C302 284 603A C303 283 603A C304 284 542A C305 285 542A	+ -	DES16 P102 LOC CODE CR301 2F4 444K-013AF PLUG CR302 2F4 444F-033C CR303 2E5 444F-033C CR304 2C4 436M-013AF	R301 2A3 K5-3490LH-20800R, KS-20810 L1A, 19600 R302 2A3 K5-3490LH-13200R, KS-20810 L1A, 13.3K R303 2A3 K5-3490LH-13200R, KS-20810 L1A, 13.3K R304 2A5 K5-3490LH-20800R, KS-20810 L1A, 19600 R305 2B3 K5-3490LH-23000R, KS-20810 L1A, 3320 R306 2B3 K5-3490LH-20800R, KS-20810 L1A, 3010 R307 2C3 K5-13490L, D.22 MEG R308 2C3 K5-3490LH-20800R, KS-20810 L1A, OR EQUIV., 0.226 MEG R309 2C3 K5-13490L, 10,000 R310 2C4 K5-13490L, 10,000 R311 2D4 K5-3490LH-20800R, KS-20810 L1A, 51.1K R312 2D4 K5-3490LH-20800R, KS-20810 L4C, 1100R R313 2D5 K5-13490L, 10,000 R314 2D5 K5-13490L, 1500 R315 2D4 K5-3490LH-20800R, KS-20810 L1A, 1,0000 R316 2D5 K5-3490LH-20800R, KS-20810 L1A, 1,0000 R317 2E3 K5-3490LH-14,000R, KS-20810 L1A, 17.8K R318 2F3 K5-3490LH-140R, KS-20810 L1A, 33.2K R319 2F3 K5-3490LH-1400R, KS-20810 L1A, 3010 R320 2G3 K5-3490LH-1400R, KS-20810 L1A, 14700	0S16 LOC CODE 0701 2B3 0702 2B5 0703 2D3 0704 2C4 0705 2E3 0706 2D4
C				POTENTIOMETER		
D				RESISTOR		
E	VARISTOR	0ES16 LOC CODE RV301 2C3 100P		CODE R310 2D3 R311 2D4 R312 2D4 R313 2D4 R314 2D4 R315 2D4 R316 2D5 R317 2E3 R318 2F3 R319 2F3 R320 2G3	R321 2E4 K5-3490LH-20810 L1A, 1.0MEG	
F						
G						
H						

NOTE:

- PRIOR TO ISSUE 80 THE ED-99657-30 PULSE GENERATOR WAS THE P-421811 PULSE GENERATOR.
- PRIOR TO ISSUE 11B THE ED-99657-31 PULSE GENERATOR WAS THE ED-99557-30 PULSE GENERATOR.

NOTICE  
NOT FOR USE IN  
BELL SYSTEM  
TELEPHONE SYSTEM  
UNLESS AGREED

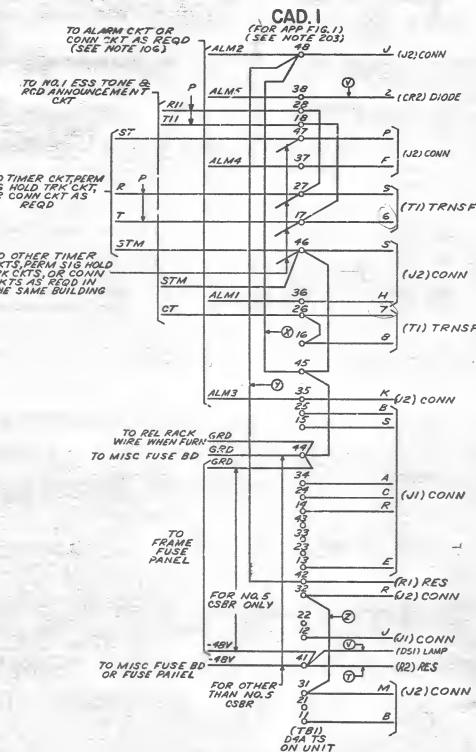
ISSUE  
180

4008 TONE GENERATOR CIRCUIT	
SD-99303-01-4	
BELL TELEPHONE LABORATORIES INCORPORATED	
65	RECEIVED BY

DRAWING ISSUE  
5B  
TAC  
REV  
001  
6B  
REV  
001  
TB  
REV  
001  
CAB  
REV  
001  
PAN  
REV  
001  
90  
10B  
11B  
ISSUE  
18D

CAD. I

TO ALARM CKT OR  
CONN CKT AS REQD  
(SEE NOTE 106) YAL



SD-99303-01-5

**NOTICE**  
NOT FOR USE OR  
DISCLOSURE OUTSIDE  
THE BILL SYSTEM  
EXCEPT UNDER  
WRITTEN AGREEMENT

**ISSUE**  
**18D**

400A TONE GENERATOR CIRCUIT 2  
ALL TELEPHONE LABORATORIES

SD-99303-01-5

ICE  
USE OR  
OUTSIDE  
SYSTEM